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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/633,644	08/07/2000	Yu-Kung Hsiao	TSMC2000-085	3337

7590 05/29/2002  
George O Saile  
20 McIntosh Drive  
Poughkeepsie, NY 12603

EXAMINER

KANG, DONGHEE

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 05/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/633,644

Applicant(s)

Y.K.HSIAO ET AL

Examiner

Donghee Kang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 16 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I (claims 1-15) in Paper No. 5 is acknowledged. The traversal is on the ground(s) that the field of search must necessarily cover both the method class/subclass and products class 257/432 in addition to other related classes and subclasses to provide a complete and adequate search. This is not found persuasive.

A restriction requirement between one set of product claims and a set of process claims was issued in the Office Action of Paper No.4, mailed on January 23, 2002. "section 121 permits a restriction for "independent and distinct invention," which the PTO construes to mean that the sets of claims must be drawn to separately patentable inventions.' A product and the process of making the product are "two independent, albeit related inventions," See *In re Taylor*, 149 USPQ 615, 617 (CCPA 1966). "When two sets of claims filed in the same application are patentably distinct or represent independent invention, the examiner is to issue a restriction requirement." See *In re Berg*, 46 USPQ2d 1226, 1233 n.10 (Fed.Cir 1998).

The examiner, in issuing a restriction requirement, must demonstrate "one way distinctiveness." *Applied Materials Inc.* at 1492. As stated within the restriction requirement, "inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be made by another and materially different process.". In this application, the examiner restricted the product claims from the process claims on the grounds that "the product as claimed can be made by another and materially

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different process such as a process wherein depositing one thick planarizing layer instead of two planarizing layers (second & third).

In addition to one way distinctiveness, the examiner must show "why it would be a burden to examine both sets of claims." *Applied Materials Ins.* at 1492. "A serious burden on the examiner may be prima facie shown if the examiner shows by appropriate explanation either separate classification, separate status in the art, or a different field of search." MPEP 803. An explanation was provided in the restriction requirement. Specifically, in addition to being distinct, the examiner indicated that restriction is proper because the product claims and the process claims "have acquired a separate status in the art."

The requirement is still deemed proper and is therefore made FINAL.

***Information Disclosure Statement***

2. Acknowledgment is made of receipt of applicant's Information Disclosure Statement (PTO-1449) filed November 13, 2000.

***Drawings***

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: the disclosure does not mention numeral number "11".

A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-15 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Referring to claim 1: the specification does not support the limitations “*forming upon the optical spacer and planarizing layer a first patterned color filter layer..*”.

Referring to claim 6: the specification does not support the limitation “*the overcoat is comprised of a patterned multiplayer dielectric stack..*”.

Referring to claim 10: the specification does not support the limitation “*the overcoat layer is exposed to ultraviolet or other irradiation to photopolymerize the material comprising the overcoat.....*”.

Referring to claim 11: the specification does not support the limitation “*the overcoat layer is comprised of a negative type photoresist to serve as thermal barrier..*”

Referring to claim 12: the specification does not support the limitation “*ultraviolet or other irradiation is used...*”.

Regarding claim 14: the specification does not support the limitation “*ultraviolet or other irradiation, including thermal processes, further polymerize the microlens layer...*”.

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Claims 2-5, 7-9, 13, & 15 are rejected since each includes the limitations of independent claim 1.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1 & 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the optical spacer and planarizing layer" in line 11.

Claim 9 recites the limitation "the photoresist material" in line 1. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-3 & 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuka (US 6,040,591) in view of Baek (US 6,127,668).

Otsuka teaches a microelectronic method of fabricating a semiconductor color imaging device:

a silicon substrate (11) having a matrix of photodiode elements (CCD) formed thereon; forming a metal photoshield layer (13), wherein the metal photoshield elements are periodically spaced to cover the areas between the photodiode elements;

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forming upon the patterned metal photoshield layer a first optically transparent planarizing encapsulant layer; forming upon the first optically transparent planarizing encapsulant layer a first color filter layer registered with a subset of the photodiode elements; forming upon the first color filter a second planarizing layer; forming upon the second planarizing layer a patterned microlens layer; and forming upon the microlens (hemispherical convex) layer a transmittance overcoat layer with a planar top surface. See Fig.5 & Col.3, line 56 – Col.4, line 15.

Otsuka does not teach depositing a passivation coating encapsulating a metal photoshield layer. However Baek teaches depositing a passivation coating (43) encapsulating a metal photoshield layer (42). See Fig.3c & Col.3, line 61 – Col.4, line 7. Thus it would have been obvious in the art at the time the invention was made to incorporate the teaching of Baek into the Otsuka's device in order to protect the metal photoshield layer.

Neither Otsuka nor Baek teaches forming upon the second planarizing layer a third planarizing spacer layer. Sano et al teaches forming the third planarizing layer on the second planarizing layer. See Fig.1 & Col.1, line 39 – Col.9, line 35. Therefore it would have been obvious in the art at the time the invention was made to combine the teaching of Sano with Otsuka as modified by Baek in order to optimize focal length microlens.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

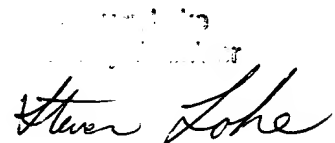
Aoki et al. (US 5,479,049 A)

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghee Kang whose telephone number is 703-305-9147. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Donghee Kang, Ph.D.  
May 17, 2002

A handwritten signature in black ink, appearing to read "Steven Loh". Above the signature is a faint, circular stamp, likely an official seal or stamp from the US Patent and Trademark Office.